

## CLAIMS

1. A method of grinding an outer circumferential surface of a workpiece formed of a hard and brittle material into a predetermined shape using a grinding wheel while  
5 rotating the workpiece, the method comprising:

plunge grinding the workpiece at an arbitrary portion in a longitudinal direction of the workpiece by causing the grinding wheel to come in contact with the workpiece in a direction which intersects a rotational axis of the workpiece; and

10 traverse grinding the workpiece toward the plunge ground portion by moving the grinding wheel relative to the workpiece in a direction parallel to the rotational axis of the workpiece.

2. The method according to claim 1, wherein the plunge grinding is performed for at least one end of the workpiece in the longitudinal direction.

15 3. The method according to claim 1, wherein the plunge grinding is performed for a middle portion of the workpiece in the longitudinal direction.

20 4. A method of grinding an outer circumferential surface of a workpiece formed of a hard and brittle material into a predetermined shape using a grinding wheel while rotating the workpiece, the method comprising:

traverse grinding the workpiece from one end to a middle portion in a longitudinal direction of the workpiece by moving the grinding wheel relative to the workpiece in a direction parallel to a rotational axis of the workpiece; and

25 traverse grinding the workpiece from the other end to the middle portion of the workpiece in the longitudinal direction.

5. The method according to any of claims 1 to 4, wherein the workpiece is a honeycomb structure used for a diesel particulate filter.

6. The method according to any of claims 1 to 5, wherein the plunge grinding and the traverse grinding are performed in dry air while setting a rotational speed of the grinding wheel to 100 m/sec or more.